

ART 34 AMDT

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CLAIMS

1. A polishing liquid composition for polishing a surface to be polished comprising an insulating layer and a metal layer, the polishing liquid composition comprising a compound having a structure in which each of two or more adjacent carbon atoms has a hydroxyl group in a molecule, and water, wherein the compound having a structure in which each of two or more adjacent carbon atoms has a hydroxyl group in a molecule is represented by the formula (I):



wherein R¹ is a hydrocarbon group having 1 to 24 carbon atoms; X is a group represented by (CH₂)_m, wherein m is 1, oxygen atom, sulfur atom, COO group, OCO group, a group represented by NR² or O(R²O)P(O)O, wherein R² is hydrogen atom or a hydrocarbon group having 1 to 24 carbon atoms; q is 0 or 1; and n is an integer of 1 to 4.

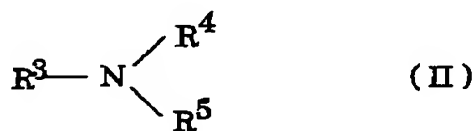
2. The polishing liquid composition according to claim 1, further comprising an organic acid.

3. The polishing liquid composition according to claim 2, wherein the organic acid is an etching agent.

4. The polishing liquid composition according to claim 1, further comprising an etching agent comprising an inorganic acid.

5. A polishing liquid composition for polishing a surface to be polished comprising an insulating layer and a metal layer, the polishing liquid composition comprising an aliphatic carboxylic acid having 7 to 24 carbon atoms and/or a salt thereof, an etching agent comprising an organic acid, and water.

6. A polishing liquid composition for polishing a surface to be polished comprising an insulating layer and a metal layer, the polishing liquid composition comprising an amine compound represented by the following general formula (II):



wherein R³ is a linear or branched alkyl group having 4 to 18 carbon atoms, a linear or branched alkenyl group having 4 to 18 carbon atoms, an aryl group having 6 to 18 carbon atoms, and an aralkyl group having 7 to 18 carbon atoms; each of R⁴ and R⁵, which may be identical or different, is hydrogen atom, a linear alkyl group having 1 to 8 carbon atoms or a branched alkyl group having 3 to 8 carbon atoms, or a group represented by H-(OR⁶)_Z, wherein R⁶ is a linear alkylene group having 1 to 3 carbon atoms, or a branched alkylene group having 3 carbon atoms; and Z is a number of 1 to 20, and/or a salt thereof, an etching agent, an oxidizing agent, and water.

SUB A₁ > 7. ~~The polishing liquid composition according to any one of claims 1 to 5, further comprising an oxidizing agent.~~

8. ~~The polishing liquid composition according to any one of claims 1 to 7, further comprising an abrasive.~~

SUB A₂ > 9. ~~A process for polishing a semiconductor substrate, comprising polishing a surface to be polished comprising an insulating layer and a metal layer using the polishing liquid composition of any one of claims 1 to 8, thereby smoothening the semiconductor substrate.~~

10. ~~A process for manufacturing a semiconductor substrate comprising polishing a surface to be polished comprising an insulating layer and a metal layer using the polishing liquid composition of any one of claims 1 to 8, thereby smoothening the semiconductor substrate.~~

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